

16.

Spiders of the Families Lyssomanidae and Salticidae (Magoninae)
from British Guiana and Venezuela.¹

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(Text-figures 1-4).

[This contribution is a result of various expeditions of the Department of Tropical Research of the New York Zoological Society to British Guiana and to Venezuela, all made under the direction of Dr. William Beebe. The Guiana expeditions were made during the years 1917, 1919, 1920, 1921, 1922 and 1924. The Venezuelan trip, in 1942, was sponsored by grants from the Committee for Inter-American Artistic and Intellectual Relations and from four trustees of the Zoological Society, George C. Clark, Childs Frick, Laurance S. Rockefeller and Herbert L. Satterlee, and by invaluable assistance from the Standard Oil Companies of New Jersey and Venezuela.]

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I. INTRODUCTION.

This is the first of a series of papers on the spiders collected at Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela, by expeditions of the Department of Tropical Research of the New York Zoological Society under the direction of Dr. William Beebe. For maps and ecological data, see Beebe, 1925 and 1943.

The present study is based on the lyssomanids and on the salticids of the subfamily Magoninae in the collection. The 84 specimens comprise 10 species: 3 species (34 individuals) of Lyssomanidae, of which 25

individuals belong to one species, *Lyssomanes nigropictus* Peckham; and 7 species (50 individuals) of Magoninae, of which 25 belong to the new species, *Mago silvae*, there being individually few of the others. Of the 10 species, 8 are regarded as new. Seven were taken in both British Guiana and Venezuela; 2 in British Guiana only and 1 in Venezuela only. In 7 of the species both males and females were taken, and in 4 species enough young, in addition to the adults, to form interesting growth series. Descriptions of colors in life, often so different from those in preservative, habitat notes, and dates of capture of various growth stages are included in most of the species discussed. Further summaries, detailed development studies, and discussion of breeding seasons must await completion of the study of the remaining salticids.

While these data form only a beginning of life history work in these little-known tropical salticids, they furnish an example of the many advantages to be gained by studying tropical animals in the field in one or two adjacent localities throughout a number of seasons. Only by such methods can knowledge of ecological and psychological characters (such as those of display), now recognized as of vital importance even from a purely taxonomic viewpoint, be added to morphological descriptions of species. And only by future comparative studies of all these factors can the evolution and relationships be understood of such an important and puzzling group as the salticids.

In this paper, total length is measured from anterior margin of orbit to posterior tip of abdomen. For convenience, an arbitrary division of young specimens into immature ("imm.") and juvenile ("juv.") stages is made, as follows: A specimen is regarded as immature when the genital organs are well formed, but some obvious weakness of pigmentation, shortness of chelicerae or palp, etc., indicate a pre-adult stage. A

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spider is listed as juvenile when there is no external development of the bulb on the male palpal tarsus or no visible epigynum in the female.

Petrunkewitch (1911, 1928, 1933) is followed in general classification.

All types are deposited in the collections of the Department of Tropical Research of the New York Zoological Society, Bronx Park, New York City.

My thanks go to Dr. William Beebe for the use of his field notes concerning British Guiana specimens, and to Mr. Henry Fleming, entomologist of the Venezuelan Expedition, for collecting the majority of the Venezuelan specimens. Where not otherwise specified, the field notes are my own.

I wish to express here my appreciation to Dr. Alexander Petrunkewitch and Dr. W. J. Gertsch for their helpfulness with bibliographic questions.

FAMILY LYSSOMANIDAE.

Lyssomanes nigropictus Peckham, 1888.

Text-figs. 1A, B, C, D, E.

References: *Lyssomanes nigropictus* Peckham, 1888, p. 235, pl. xi, fig. 10; Simon, 1901, p. 392, figs. 394, 395, 410, 411.

Color in Life: Male (Venezuelan specimen): Integument of cephalothorax pale translucent yellow green with median black stripe on thoracic part and another along each side of same, along margin. Anterior eyes translucent yellow green. A black stripe across clypeus, a black spot at base of each chelicera posteriorly, and black bars on inner and outer sides of femur of palpus. All legs paler than cephalothorax, each with black bands on distal end of femur, and on basal and distal ends of tibia; tarsi entirely black; some long black hairs on legs. Abdomen pale translucent yellow green with four pairs of black, irregular-sized spots, those of the most posterior pair being more or less confluent. Preserved specimens agree with Peckham's description: that is, all of the markings remain, but are faded to brown or grayish, while the general color is yellowish to white.

Female (from a painting of a living Guiana specimen, and descriptions of two Venezuelan examples): Like male, except that there are no markings whatever save for the usual black spots in which the dorsal eyes are set; the ocular area is ornamented with a few silvery green (in young) to yellowish (in adult) hairs. A few hairs on legs brownish. Abdomen distinctly richer, darker green than in male.

Immature male (Venezuela): Identical coloring with female, except that reddish-brown is mixed with black on the large tubercle holding the median lateral eyes.

Remarks: There seems to be no question

of the identity of the present material from British Guiana and Venezuela with the single "Amazonica" specimen of Peckham (from Simon's collection), both description and figure checking well. The few differences are as follows: the posterior abdominal spots are strongly fused in our specimens, instead of merely "connected by a brown band;" spots at the base of the chelicerae are not mentioned by Peckham, although distinct in all our well developed males; finally, Simon's figure of the chelicera (1901, p. 394, fig. 411) shows only the 4 large teeth, not the additional 3 minute basal ones found in our specimens. In some of our examples these basal teeth are so small and close-set that they could be easily overlooked. Because of the relative abundance of this species, both males and females, in each of the two localities collected, and the identity of non-sexual structures (chelicerae, eyes, etc.), I refer the females listed below to this species without hesitation.

Measurements in mm.: Largest male, total length 5.26; cephalothorax 2.46; abdomen 2.8. Smallest male, total length 3.36. Largest female, total length 6.25; cephalothorax 2.25; abdomen 4.0. Smallest female, total length 3.07.

Range: Known from "Amazonica;" Kartabo, British Guiana; Caripito, Venezuela.

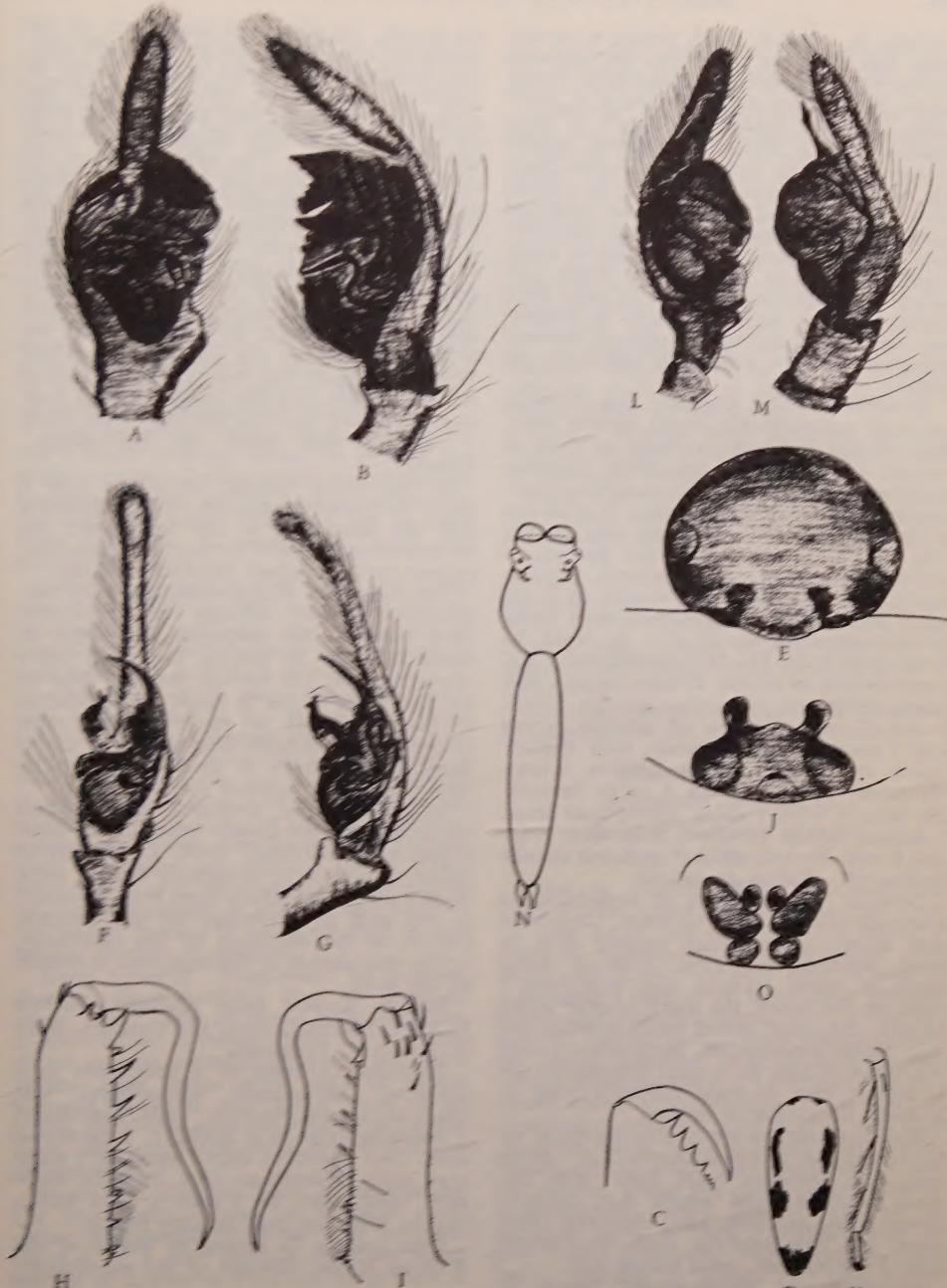
Local Distribution: The Caripito specimens were all shaken off bushes and low trees on the edges of sunny jungle roads and along trails through scrub jungle.

Material: A total of 25 specimens was taken around Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela, distributed as follows: *Kartabo:* 1917: Sept 2 ♂, 3 ♀, incl. juv. and imm. (Cat. Nos. 1713, 1716, 1733); 1920: June-Dec., 2 ♂, 6 ♀, incl. imm. (Nos. 201619, 201620); 1921: Jan.-April, 1 ♂ (No. 21309); 1922: April 16, 1 ♀ (No. 22216), Feb.-Oct., 1 ♂, 4 ♀, incl. imm. (Nos. 221141, 221142). *Caripito:* 1942: Mar. 11, 1 ♂ (No. 4236); Mar. 22-30, 1 imm. ♀, 1 juv. ♂ (Nos. 42125, 42126); April 1-15, 3 juv. ♀ (No. 42438).

Lyssomanes beebei sp. nov.

Text-figs. 1F, G, H, I, J, K.

Color in Life: Adult male: Unknown. Adult female: "Translucent green, with ocular quadrangle pink" (Beebe). Young female: Cephalothorax translucent light green (Ridgway's Color Key) except for a pair of longitudinal patches of yellow hairs, embracing dorsal eyes and confluent immediately behind anterior eyes; anterior eyes night green; chelicerae, palps, legs and abdomen clear yellow green except for brown fangs and black tarsal tips. Spiderlings, just hatched: "Cephalothorax pale green, abdomen darker green." (Beebe).



TEXT-FIG. 1. A, *Lysosmoxes nigropictus*, ♂, left palpus, ventral view (drawn with basal part more elevated than in Peckham's view); B, same, ectal view; C, same, chelicera, ventral view; D, same, abdomen, dorsal view; E, same, ♀, epigynum (hairs omitted); F, *Lysosmoxes beetzi*, ♂ holotype, left palpus, ventral view; G, same, ectal view; H, same, chelicera, ventral view; I, same, dorsal view; J, same, ♀ paratype, epigynum (hairs omitted); K, same, ♂ holotype, first metatarsus and tarsus; L, *Chinoscopus maculipes*, ♂ holotype, left palpus, ventral view; M, same, ectal view; N, same, cephalothorax and abdomen, dorsal view; O, same, ♀ paratype, epigynum (hairs omitted).

Color in Alcohol: Both sexes, as usual, have lost all trace of green, the cephalothorax being yellowish, the abdomen almost white. Dorsal eyes set in two pairs of black spots. Hairs of ocular quadrangle in male scanty, silvery white, in female bright orange, extending down beyond outer margin of anterior eyes, mingled with silvery white ones around and between anterior eyes; in young females the orange hairs are pale yellow. A band of silvery white hairs across clypeus in both sexes. Fang and spines horn-colored. Abdomen of male with a grayish-black marginal band, of irregular width, surrounding it except at extreme posterior tip. No abdominal markings on female.

Structure: Male: Cephalic and thoracic parts of cephalothorax about equally long. Eyes of first row twice as large as those of second. Clypeus about two-fifths diameter of anterior eyes. Chelicerae elongate, divergent; 4 teeth on upper margin (2 close together, a third less than half way to tip, and 1 distal); 9 teeth on lower margin (a series of 6, almost equally spaced, increasing in size distally, plus a cluster of 3 unequal ones distally); a group of large, spiny bristles on outer distal end; no teeth on fang. Legs I, II, IV, III. Metatarsus I $4\frac{1}{2}$ times as long as tarsus; fringes on each side feebly developed, increasing distally. Tibias I and II with 4 pairs of inferior spines and 1 pair of strong laterals, very slightly above and behind distal inferior spines. Metatarsi I and II with 3 pairs beneath. All femora with 1 spine above, near base, 3 beyond middle (1 above, 1 on each side) and 3 near tip (of which 1 or 2 are usually broken off). Palpus as figured.

Female: Thoracic part of cephalothorax relatively longer than in male. Chelicerae well developed but much shorter than in male, scarcely diverging, without distal tooth on upper margin, and with only 7 teeth on the lower, the distal cluster being absent; the outer distal spiny bristles are only feebly represented. Metatarsus I only $3\frac{1}{2}$ times as long as tarsus; fringes scarcely weaker than in male. Spines exactly as in male. Epigynum as figured.

Measurements in mm.: Male holotype, total length 5.47; cephalothorax 2.29; abdomen 3.18; chelicera (excl. fang) 2.46. Female paratype, total length 6.0; cephalothorax 2.36; abdomen 3.64; chelicera (excl. fang) 1.0. Male paratype, imm., total length 5.03. Female, imm., total length 5.81.

Breeding and Development: "April 19, 1924: Found female beneath leaf with 20 round, green eggs, deposited singly, close together on a small circular area. Egg .85 mm. in diameter. April 21: Eggs all hatched, or at least ruptured, and gathered in a tiny, white, shrivelled mass at the meeting place

of mouth, leg tips and abdomens of the young spiders. These are in a curious post-ova condition, far from able to move or function. Each large, rounded, green abdomen is bent down, and the legs and palpi all ranged side by side, all centered beneath the cephalothorax. The eyes are very indistinct, merely sketched in, and the whole cephalothorax is swollen, rounded and pale green. The spiderlings are 1.3 mm. long. April 22: The young spiders have unbent, their legs are free and spread out and the mother has devoured all but five of their egg skins, and has spun a little open work tent over the young, so fine that only by holding it against the light is it visible. When disturbed, the young ones scramble around weakly, and the mother creeps over them on guard, and will not leave even when I put the leaf under the microscope." (Beebe).

In the young female, there are only 6 teeth on the lower margin of the chelicera and the epigynum is not developed; the leg spines and general proportions, however, appear quite sufficient for identification.

The chelicerae of the young male are considerably shorter actually and relatively than those of the holotype, but differ in armature only in having the teeth more closely spaced (as in the female) and in having 5 and 7, not 9, large distal bristles on the upper side, on right and left sides respectively. Pigment and palp well developed. The holotype is probably not quite mature, since it appears about to molt.

Affinities: The proposed new species seems to be rather closely related to *L. mandibulatus* Cambridge, 1900, from Central America, and to *L. consimilis* Banks, 1929, from Panama. It differs from both, however, in the lack of markings on the thoracic region, in the dentition of the chelicerae, in the spinulation of the legs, and in details of the palp.

Range: Known from Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela.

Material: A total of 4 specimens (not counting just-hatched spiderlings) was taken as follows: *Kartabo*: 1920: Jan.-April, ♂ holotype (Cat. No. 201621), ♂ paratype, imm. (No. 201622); 1924: April 19, ♀ paratype with spiderlings (No. 24,422). *Caripito*: 1942: Mar. 18, 1 imm. ♀ (No. 4275), shaken from low tree in high jungle.

This species is named in honor of Dr. William Beebe, director of the expeditions.

Chinoscopus maculipes sp. nov.

Text-figs. 1L, M, N, O.

Color in Life: Adult male holotype: Integument of cephalothorax and abdomen entirely translucent lettuce green, except for

a narrow brown stripe extending completely around margins of cephalothorax, including clypeus, and a similar one around abdomen. Dorsal eyes each set in a black base, and these in a single pair of patches of shining white hairs. Palpi and labium reddish-brown. Anterior eyes translucent reddish-brown. Legs translucent and colorless except for purplish-brown bands as follows: on distal end of femur, basal and distal ends of tibia, basal and distal of metatarsus and most of tarsus. In addition, the entire femur and tibia of the front legs especially and second legs somewhat appear bright purple in certain lights; it seems the thread of pigment they contain must be magnified by the curve of the leg, like mercury in a thermometer. Spinnerets reddish-brown.

Juvenile male: Differs from adult in being a much yellower green, in lacking the ocular patches of white hairs, and the brown marginal stripes, and in having pigment on the legs only near base and tip of each tibia and base of metatarsus; palpi and spinnerets colorless.

Color in Alcohol: In both adult and young described above, as well as in our two remaining male specimens, the integument of cephalothorax and abdomen is yellowish or pale brownish (*not* dark brown or black as in other males of the genus except *brasiliensis*), and whitish in the young. The white cephalic hairs are largely missing, and have turned yellowish, while the brown stripe is variable in strength, not depending wholly on development. Eyes and spinnerets faded, colorless. The banding of the legs remains, somewhat stronger even than in life, the pigment of femora and tibiae I and II being much stronger in the adult males, darkening the entire segments of the first and much of the second, instead of being confined to thin median threads of pigment.

Adult females: Integument of cephalothorax yellowish-white, that of abdomen white. Black bases of dorsal eyes moderately well clothed in yellow hairs. No marginal stripe and no pigment on palpi and spinnerets. Legs white with spots of brown pigment at basal and distal ends of all tibiae, metatarsi and distal parts of tarsus. Fang and epigynum light brown. Labium unpigmented.

Structure: Cephalic part of cephalothorax only half as long as thoracic part; ocular quadrangle twice as wide as long; about 5 or 6 very minute teeth on lower margin of chelicera. Palp and epigynum as figured.

Measurements in mm.: Male holotype, total length 5.91; carapace 2.04; abdomen 3.83; leg I: femur 4.62, patella .75, tibia 4.35, metatarsus 4.41, tarsus .86. Female paratype, total length 6.02; carapace 1.88; abdomen 4.14; leg I: femur 3.91, patella

.65, tibia 3.48, metatarsus 3.59, tarsus .81. Juv. female, total length 3.38; two juv. males, total lengths 5.5, 6.72.

Affinities: In generic characters the proposed new species is a typical *Chinoscopus*. It differs radically from all three forms, *flavus* (Peckham, 1888), *gracilis* (Taczanowski, 1872), *ernsti* (Simon, 1900) and *brasiliensis* Mello-Leitão, 1917, described, however, as follows: The male is light in color in both living and preserved specimens and has a marginal body stripe; black spots or bands are present near the joints of at least the tibiae and metatarsi in all legs in both sexes; details of the palp are distinct; epigynum of the female is quite different from that of *flavens*, the other known female in the genus.

Range: Known from Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela.

Local Distribution: two males, both adult and young, were shaken at different times from shrubs beside a sunny jungle road.

Material: A total of 5 specimens was taken, as follows: *Kartabo*: 1924: April, 1 ♀ paratype (Cat. No. 241010). *Caripito*: 1942: April 3, 1 ♂ holotype (No. 42161); Mar. 22-30, 1 imm. ♂ (No. 42124); May 1-15, 1 imm. ♀ (No. 42439); May 15-30, 1 imm. ♂ (No. 42440).

The name *maculipes* is given this species in reference to the marking on its legs.

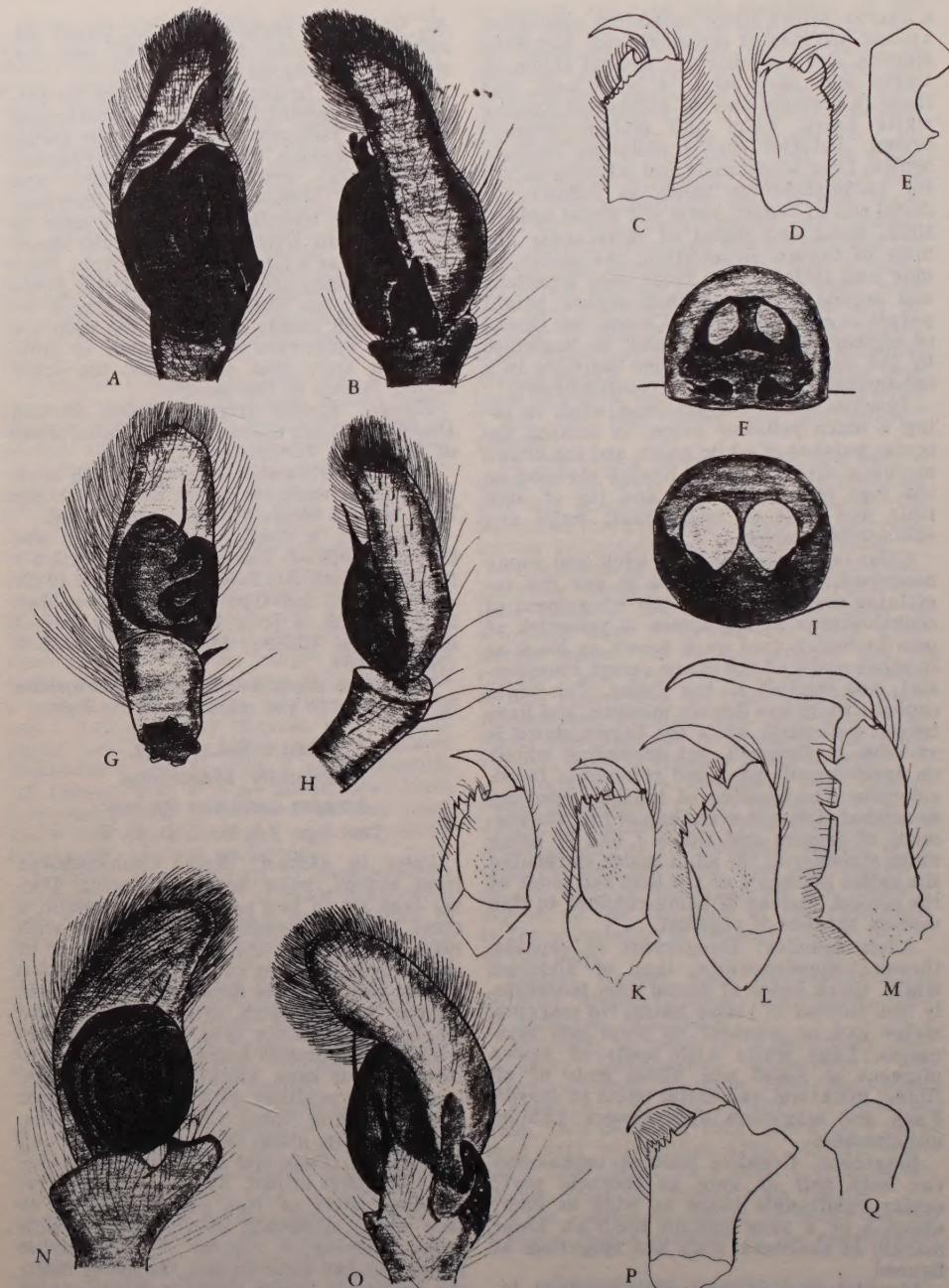
FAMILY SALTICIDAE.

Subfamily Magoninae.

Acragas carinatus sp. nov.

Text-figs. 2A, B, C, D, E, F.

Color in Alcohol: Male: Cephalothorax light rufous, paler around margins. Dorsal eyes set in two pairs of black spots; a crest of reddish-orange hairs mixed with black ones behind anterior eyes; a pair of subquadrate patches of white hair between middle and posterior dorsal eyes; a smaller, similar, median patch, often almost rubbed off, behind posterior eyes. All eyes rimmed with reddish-orange hairs; clypeus reddish-brown under eyes, blackish above margin, ornamented medially with a large oval spot of short white hairs. Chelae, mouthparts, tarsus of palp, distal part of all femora and all patellae, tibiae and basal parts of metatarsi chestnut brown. Rest of palp and remaining parts of legs yellowish-white to pale horn. Abdomen above covered with hairs forming a central whitish stripe flanked by two olive stripes, the latter meeting anteriorly, where they are darkened and have a reticulated appearance. Anterior third of abdomen with two well separated pairs, in the olive region, of small, faint, dark, reticulated spots. Posterior third with 2 pairs of strong, black, subquadrate spots,



TEXT-FIG. 2. **A**, *Acrugas carinatus*, ♂ paratype, left palpus, ventral view; **B**, same, ectal view; **C**, same, chelicera, ventral view; **D**, same, dorsal view; **E**, same, endite, ventral view (hairs omitted); **F**, same, ♀ paratype, epigynum (hairs omitted); **G**, *Cobanus scintillans*, ♂ holotype, left palpus, ventral view; **H**, same, ectal view; **I**, same, ♀ paratype, epigynum (hairs omitted); **J**, same, chelicera, ventral view; **K**, same, juvenile ♂; **L**, same, immature ♂ paratype; **M**, same, adult ♂ holotype; **N**, *Hypaeus porcatus*, ♂, left palpus, ventral view; **O**, same, ectal view; **P**, same, chelicera, ventral view; **Q**, same, endite (hairs omitted).

and behind them a much fainter third pair. Abdomen below white marginally with entire central portion olive, sometimes faintly striped.

Female: Differs from male as follows: The scanty crest is composed entirely of light yellowish hairs; white interocular, postocular and clypeal spots lacking; interocular ones replaced by reddish hairs; abdomen white, unmarked except for a pair of very small, faint spots anteriorly (representing the second faint pair of the male), and posteriorly by the two pairs of strong, black spots; no trace of the fainter third posterior pair of the male. Each of the strong spots is preceded by a small spot of white hairs, better developed before the more posterior pairs of spots.

Structure: With the characteristics of the genus. Male chelicera externally with a strong carina ending in a pronounced tooth; upper margin with a large black tooth, compressed, with an oblique inner margin but pointed tip; lower margin with up to 6 minute teeth (5 or less in the immature, and sometimes 6 on one side, 5 on the other); the basal one considerably the largest, decreasing in size distally. External distal part of lamina dilated and subangulate. Palp as figured.

Female differs from male as follows: chelicera smaller, without keel or keel tooth, and with 2 small teeth on upper margin replacing enlarged one of the male. Outer angle of lamina less pronounced. Epigynum as figured.

Measurements in mm.: Male holotype, total length 5.88; cephalothorax 2.63; abdomen 3.25. Female paratype, total length 4.72 plus (probably immature; has been partially dried at one time); cephalothorax 2.29; abdomen 2.43. Male paratype, total length 2.63. Two young males, total lengths 4.61 and 5.18. Two juvenile males 4.41 and 3.94.

Development: The two juvenile males, in addition to the undifferentiated palp, have the crest rudimentary and entirely red, have female-type chelicera, and lack practically all abdominal pigment except the two pairs of strong black posterior spots, which are as dense as in adults. In one slightly immature male (4.6 mm.), found with the slightly immature female, the dark abdominal stripes are much darker than in any other specimens, almost obliterating the 4 posterior spots. In the other immature male (5.18 mm.) the olive stripes are scarcely developed.

Affinities: The proposed new species is closely related to *A. leucaspis* Simon, 1900, and to *A. longimanus* Simon, 1900. According to the descriptions, these three alone have both a cephalic crest and a white cly-

peal spot. The present species differs from the others in the fact that the crest is chiefly red, not entirely black, and in the markings of the abdomen (although all three species share at least two pairs of strong black spots). In addition, it differs from *leucaspis* in the strongly carinated chelicera ending in a distinct tooth, and from *longimanus* in having a maximum of 6, not 5, teeth on the lower margin, and in lacking white spots on the legs.

Range: Known from Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela.

Material: A total of 7 specimens was taken as follows: *Kartabo*: 1922: Feb.-Oct., 1 ♂ holotype (Cat. No. 221143); 1917: Sept., 1 ♀ paratype (No. 1710), 1 imm. ♂ (No. 1747); 1920; July-Dec., 1 imm. ♂, 2 juv. ♂ (No. 201623). *Caripito*: 1942: June 1-15, 1 ♂ paratype (No. 42441).

The name *carinatus* is given this species in reference to the well developed keel on the male chelicera.

Cobanus scintillans sp. nov.

Text-figs. 2G, H, I, J, K, L, M.

Color in Life: Adult male (from holotype): Ocular quadrangle and entire upper portion of abdomen covered with scales of brilliant iridescent metallic green shifting to purple and rosy. Lateral and thoracic parts of cephalothorax as well as clypeus with bright iridescent plum scales. Integument of cephalothorax wood brown, of abdomen paler; under parts not iridescent, sternum brown, abdomen grayish-black. Each of the four anterior eyes surrounded with narrow margin of bright yellow-orange hairs. Legs all unbanded, uniformly pale translucent horn except for anterior pair and femur of second pair, which are covered with scales of bright iridescent plum.

Immature male (paratype): Differs from adult in having iridescence on front legs barely developed. Juvenile male: Cephalothorax white except for ocular quadrangle which is brown overlaid with green iridescence shifting to rosy; a median longitudinal white stripe dividing it, which is bounded by an orange russet border running through and slightly below lateral eyes. Abdomen above brown with two longitudinal rows, one on each side of midline, of small white spots, and outside these on each side is a dark stripe. Lateral to these is a pair of white stripes. Ventral side of abdomen brown. Its entire dorsal surface is overlaid lightly with the same green-rosy iridescent scales as are on the ocular quadrangle. Chelicerae, palpi and legs translucent greenish-white; faint iridescence on joints of legs. Large eyes light brown shifting to black, rimmed with white

hairs, except dorsally where they are orangish.

Adult female: Not seen in life. Immature female: exactly like immature male, just described. Juvenile female: Cephalothorax buffy yellow; legs greenish; anterior eyes chestnut, rimmed narrowly with white hairs. Abdomen above deeper buff than cephalothorax, sprinkled irregularly with hairs of whitish iridescence and brownish-buff.

Color in Alcohol: Males, females and young: Iridescence almost vanished, remaining chiefly around dorsal eyes and, very faintly, on abdomen. Color otherwise as in life, except as follows: Cephalothorax in adults of both sexes reddish-brown, paler in female. Females of all ages with a few rusty hairs around and below dorsal eyes; large eyes framed in white. First legs of male as dark as cephalothorax, with conspicuous black hairs on lower margin of tibia, metatarsus and tarsus; second legs slightly paler; rest pale horn as in life. Legs of female all buffy white. Abdomen of male brownish, unmarked, both above and below; of female buffy white with markings as follows: A pair of longitudinal brown bands of varying width extending throughout most of length, enclosing a median series of 5 or 6 white chevrons; in addition there is a pair of lateral brown stripes; underside with a large central brownish area surrounded by white. In the two youngest males, in preservative, faint subdermal traces of one or two pairs of very faint, dark, blotchy abdominal markings, corresponding to the dark dorsal stripes of the female, are distinguishable. In the youngest females, the cephalothorax is pale brownish, abdomen white, without markings, except subdermal traces as in the males.

Structure and Affinities: The proposed new species appears to be closely related to *Cobanus unicolor* Cambridge, 1900, from which it differs in the somewhat less extreme development of the chelicera, lacking a recurved tip and having the 2 pairs of teeth somewhat closer together, even in the largest specimens; also, there is a tooth on the tibial spine of the palp below the hooked tip; similar but more strongly developed pectination is found in *C. erythrocas* Chamberlin & Ivie, 1936. No iridescence is mentioned in the description of *unicolor*, but the scales are so easily dislodged, and their brilliance so weakened by preserving liquid that they could easily have passed unnoticed in *unicolor*. In fact, each of these three characters may prove to be of no separative value, but since the present specimens are the first of the genus taken in South America, *unicolor* being known only from the Costa Rican holotype, it seems wise to refer them to a new species. The Guiana and

Venezuela series are without question identical.

Measurement in mm.: Male (holotype), total length 6.05; cephalothorax 2.69; abdomen 3.36; largest female (paratype), total length 5.69; cephalothorax 2.59; abdomen 3.1; immature male (paratype), total length 6.43; immature female (paratype), 5.47; smallest male, 5.38; smallest female, 4.0.

Development: The difference in color between adults and young has already been noted. Text-figs. 2J-M inclusive, shows a growth series indicating the development of the chelicerae, which lag behind the palpi and iridescence in development. Note how similar are the chelicerae of the adult female and juvenile male (Text-figs. 2J, 2K), and the fissidamente character of the teeth.

Range: Known from Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela.

Local Distribution: Three Caripito specimens were shaken off shrubs alongside open jungle roads and from trees in low jungle.

Material: A total of 12 specimens was taken as follows: *Kartabo*: 1921: Jan.-April, 1 ♀ (Cat. No. 21311), 1 imm. ♂ (No. 21310); 1922: Feb.-Nov., 1 juv. ♂ (No. 221144). *Caripito*: 1942: Mar. 10, 1 ♂ (holotype) (No. 4232); Mar. 24, 1 imm. ♂ (paratype) (No. 42442); April 1-15, 2 ♀ (paratypes) (No. 42443); Mar. 17, 1 ♂, 1 ♀, both imm. (No. 4267); April 15-30, 1 imm. ♂ (No. 42444); Aug. 1-15, 1 juv. ♂ (No. 42445); Aug. 15, 1 juv. ♀ (No. 42382).

Hypaeus porcatus (Taczanowski).

Text-figs. 2N, O, P, Q.

References: *Attus porcatus* Taczanowski, 1871, p. 53, pl. iv, fig. 5.

Hypaeus porcatus, Simon, 1900, p. 44; 1901, p. 419, figs. 465, 466.

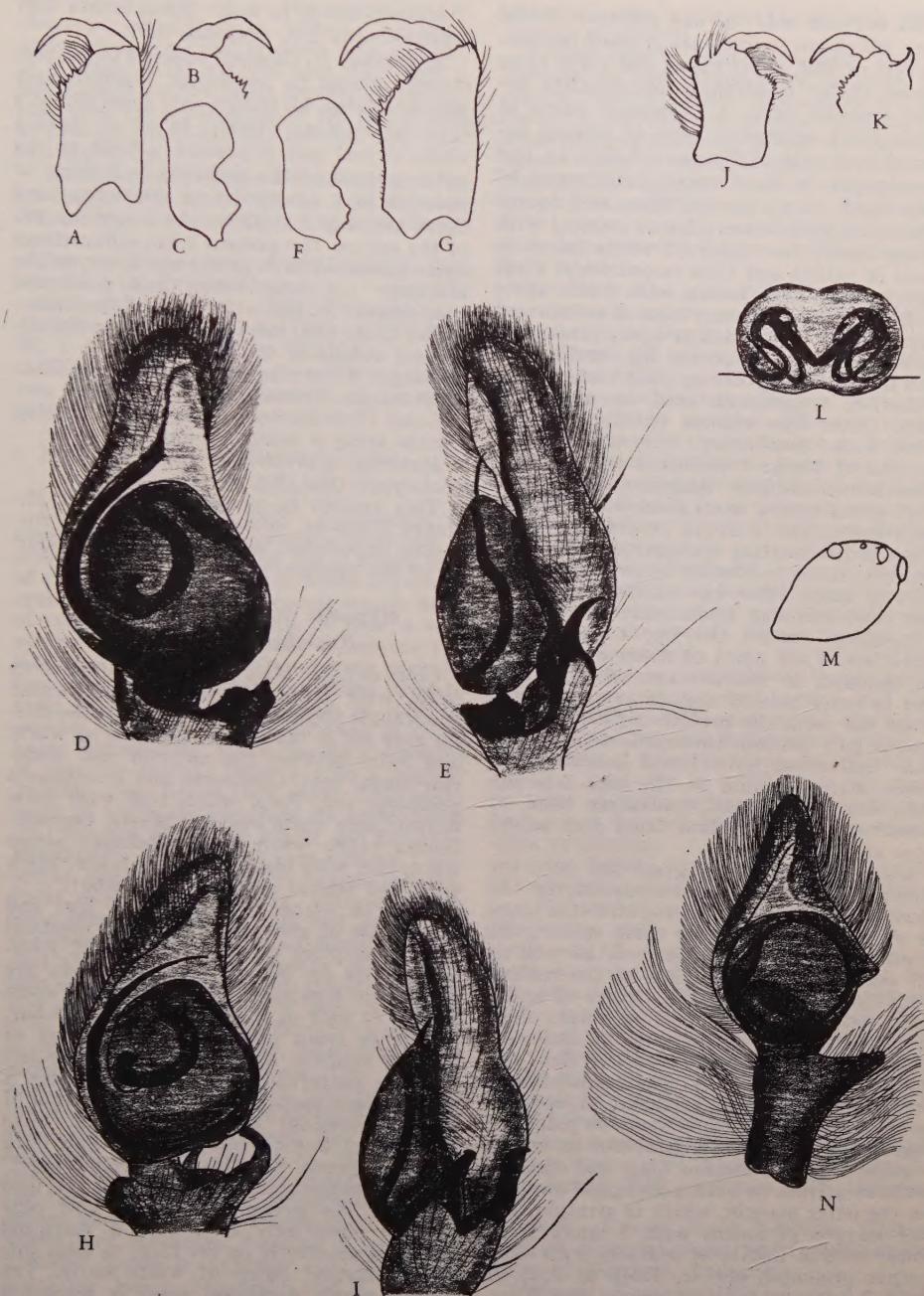
Remarks: A single, slightly immature male was taken at Kartabo, Bartica District, British Guiana, between February and October, 1922, total length 5.95 mm. (Cat. No. 221145). Its youth is shown in the length of the palps, slightly shorter than in Taczanowski's figure, and in the pigmentation of the abdomen, the spots being less distinct than indicated in Simon's description. Otherwise, the specimen agrees perfectly with the latter, except that there are 5, not 4 teeth on the right chelicera, but the typical 4 are found on the left side.

The present specimen extends the known range from French Guiana to British Guiana.

Hypaeus flemingi sp. nov.

Text-figs. 3A, B, C, D, E.

Color in Life: *Male*: Integument of cephalothorax light brown; ocular quadrangle dark brown, with a pair of patches of white



TEXT-FIG. 3. **A**, *Hypaeus flemingi*, ♂ holotype, chelicera, ventral view; **B**, same, dorsal view; **C**, same, endite, ventral view (hairs omitted); **D**, same, left palpus, ventral view; **E**, same, ectal view; **F**, *Hypaeus duodenatus*, ♂ holotype, endite, ventral view (hairs omitted); **G**, same, chelicera, ventral view; **H**, same, left palpus, ventral view; **I**, same, ectal view; **J**, *Encolpius fimbriatus*, ♂ holotype, right chelicera, ventral view; **K**, same, dorsal view; **L**, same, ♀ paratype, epigynum (hairs omitted); **M**, same, ♂ holotype, cephalothorax, lateral view; **N**, same, left palpus, ventral view.

hairs between anterior and posterior dorsal eyes, which are as usual set in black patches. A crest of stiff, short russet and black hairs across ocular quadrangle immediately behind anterior eyes. A prominent patch of white hairs occupying most of clypeus between eyes and chelicerae. Chelicerae and mouthparts chestnut brown. Integument of palp light horny except tibia and tarsus which are dark brown; femur covered with white hairs; two spots of white hairs in front of patella and tibia respectively. First legs entirely dark brown with white spots in front on tip of femur, base of patella and near base of tibia; similar spots present on patella and tibia of second leg; metatarsus and tarsus lighter brown than rest, with a yellowish, translucent area in middle of each. Other legs similar but lighter, and with coxa, trochanter and basal three-fourths of femur translucent light horny; tarsi brownish-black. Abdomen above light olive green with a basal transverse band of dark green, and a broad central greenish-black stripe starting one-quarter of way to tip; this stripe is crossed by two transverse bars of same color, one at its origin, one less than half-way to its end; it broadens irregularly toward the tip, suggesting a third bar. Four pairs of small white spots on abdomen as follows: one spot in front and to outer side of each intersection of a cross bar with the median stripe, and the fourth pair behind. Underside of abdomen pale chartreuse with broad median dark green stripe joining at its base laterally with the broad basal transverse band of dorsal side a pale yellow band just before base of spinnerets.

Color in Alcohol: So great has been the change in abdominal markings during the year since the specimen's capture that there is no hint that it is the same spider: the green has completely vanished, as well as all shading, except a trace of the median longitudinal band and three pairs of small, faint spots, the first joined by a very faint cross bar, on the otherwise white abdomen. Underside white, except for two fine, median, subcuticular lines. The cephalothorax and appendages are unchanged, except that in preservative the white spots on palpi and legs are not nearly as conspicuous as in life.

Structure: Chelicerae long and slender, without a trace or even a marginal swelling on the outer margin, which is straight. Upper margin of sulcus with 5 small teeth, lower with 3. Endite of pedipalp with outer corner produced, obtuse. Tibia of first leg with 3 pairs of ventral spines and 3 unpaired, anterior, lateral spines, of which the most distal unpaired spine is lower, longer and stronger than the other two. Palp as figured.

Measurements in mm.: Total length 5.97 cephalothorax 2.9, abdomen 3.07.

Affinities: *H. flemingi* appears to be most closely related to *concininus*, *nigrocomosus* and *cucullatus*, all known only from Simon's type descriptions (1900). In all of these a white clypeal spot is present, a tooth on the outer margin of the chelicera is lacking or reduced to a projection or convexity, and there are only 3 teeth on the lower margin of the sulcus. The present form differs from these in such details as the markings on the abdomen (in both living and preserved specimens), in the whiteness of the interocular spots and, most important, in the described details of the palp.

Range: Known only from Caripito, State of Monagas, Venezuela.

Local Distribution: Collected by beating shrubs along a sunny jungle road.

Material: Caripito: 1942: April 3, 1 ♂ (holotype) (Cat. No. 42155).

This species is named in honor of Mr. Henry Fleming, entomologist of the Venezuelan Expedition, who collected the majority of the spiders.

Hypaeus duodenatus sp. nov.

Text-figs. 3F, G, H, I.

Color in Life: Male: "Cephalothorax terra cotta, with black encircling band. Ocular quadrangle slightly deeper in color, the dorsal eyes set in black, with patches of warm buff hairs between the anterior and posterior dorsal eyes. Chelicerae and mouthparts pompeian red. Palpi warm buff with tarsi brown. Legs warm buff and brown. Cephalothorax below warm buff. Abdomen above warm buff with black markings below, black with buff lateral markings." (Beebe).

Color in Alcohol: Markings of legs and upper side of abdomen practically identical with description of these parts in *H. flemingi* in life (p. 000), except that there are only 2, not 4 pairs of white abdominal spots visible (1 pair in front of second cross-bar, 1 pair in front of posterior expansion of median stripe); also, the second cross-bar and the posterior expansion each holds a pair of dark spots; finally, the coloration of these abdominal markings is dull olive brown and buffy white, rather than dark and light green. The "black encircling band" of the cephalothorax mentioned in the field-notes of the present species is now only present posteriorly as a narrow marginal line, and anteriorly on the face, on each side of the clypeal patch of white hairs. The rather poorly developed crest is composed chiefly of red hairs with a few black ones in both specimens taken; one of these appears completely mature.

Structure and affinities: This species is

very closely related to the preceding, *H. flemingi*, but differs as follows: the chelicerae are shorter and broader, with a slightly sinuous outer margin and with only 2, not 3, teeth on the lower margin of the sulcus; also, the lower spine of the palpal tibia is produced and distally slender, not short and blunt.

Measurements in mm.: Male holotype, total length 5.59, cephalothorax 2.69, abdomen 2.9. Male paratype, total length 5.38 (immature).

Range: Known only from Kartabo, Bartica District, British Guiana.

Material: Kartabo: 1922: Feb.-Oct., 1 ♂ (holotype) (Cat. No. 221146). 1924: Mar. 23, 1 ♂ (paratype) (No. 241011).

The species is named in reference to the two teeth on the lower margin of the chelicera.

Encolpius fimbriatus sp. nov.

Text-figs. 3J, K, L, M, N.

Color in Alcohol: Male: Integument of cephalothorax reddish-brown (brightest in ocular quadrangle, except for a single pair of elongate black patches in which the dorsal eyes are inserted. A few russet orange hairs of varying length encircling all eyes; a very sparse, irregular sprinkling of minute yellowish white hairs scattered over cephalothorax in general, most numerous immediately behind eyes and on sides of thoracic region; a narrow obsolescent band of white hairs immediately above the dark margins of thoracic region; clypeus with a slightly broader, very dense (but easily destroyed) band of white hairs across its entire margin; clypeus otherwise naked and blackish. Mouthparts and sternum horn-colored. Chelicerae almost black above, brown beneath. Palpi dark brown basally, otherwise pale horn except for brown bulb and spines; all the numerous, long hairs on dorsal and lateral sides pure white. Femur of anterior legs almost black, especially anteriorly; patella and tibia brown, each with a median spot of white hairs in front; metatarsus brown basally and distally, pale horn in the middle; tarsus horn-colored, tips slightly darker. All other legs with femur pale yellowish in basal half, brownish-black distally; the remaining segments very like the corresponding ones of first legs, except that patches of white hairs are rudimentary on the two posterior pairs. Integument of abdomen above light brown with broken transverse dark markings, forming 3 irregular, speckled bands in anterior half, the most posterior being broadest, and 4 similar bands in front of spinnerets, but wavy and much narrower. Entire abdomen with a plentiful covering of short light hairs. Ventral side pale, with patches of dark pigment

laterally, and a large fan-shaped patch around spinnerets.

Female exactly similar to male, even in presence of long white hairs on palpi, except as follows: hairs around eyes are yellowish to whitish, not orange; anterior femora scarcely darkened; other leg segments lighter than in male; abdomen with less pigment, the anterior bands breaking down altogether medially; underside of abdomen with a faint, dark, broad median stripe, and with fan-shaped posterior marking weaker than in male.

Structure and affinities: The proposed new species agrees so well with Simon's description of the genus and type species from Brazil (*E. albobarbatus* Simon, 1900, p. 59, and 1901, pp. 421, 427, and fig. 474) that it is possible that adequate series will show them to be identical. The only apparent differences in the males are as follows: In the present specimens there are 6, not 3 or 5, teeth on upper margin of chelicera, and 6, not 4 or 5, in a close-net series on lower margin, on the right side; on the left side, however, in both series the teeth tend to be weak and confluent, some in the upper series being obsolescent; hence, in the genus the teeth number may be quite variable within the species. The remaining differences discernable from the descriptions and single figure consist in the longer tarsus in the palp of the present species, and perhaps a difference in abdominal markings, which Simon has not described in detail. A small, hooked spine on outer, lateral side of tip of palpal tibia in addition to the more anterior elongate process shown in the anterior view figured; bulb rather compressed, little projecting.

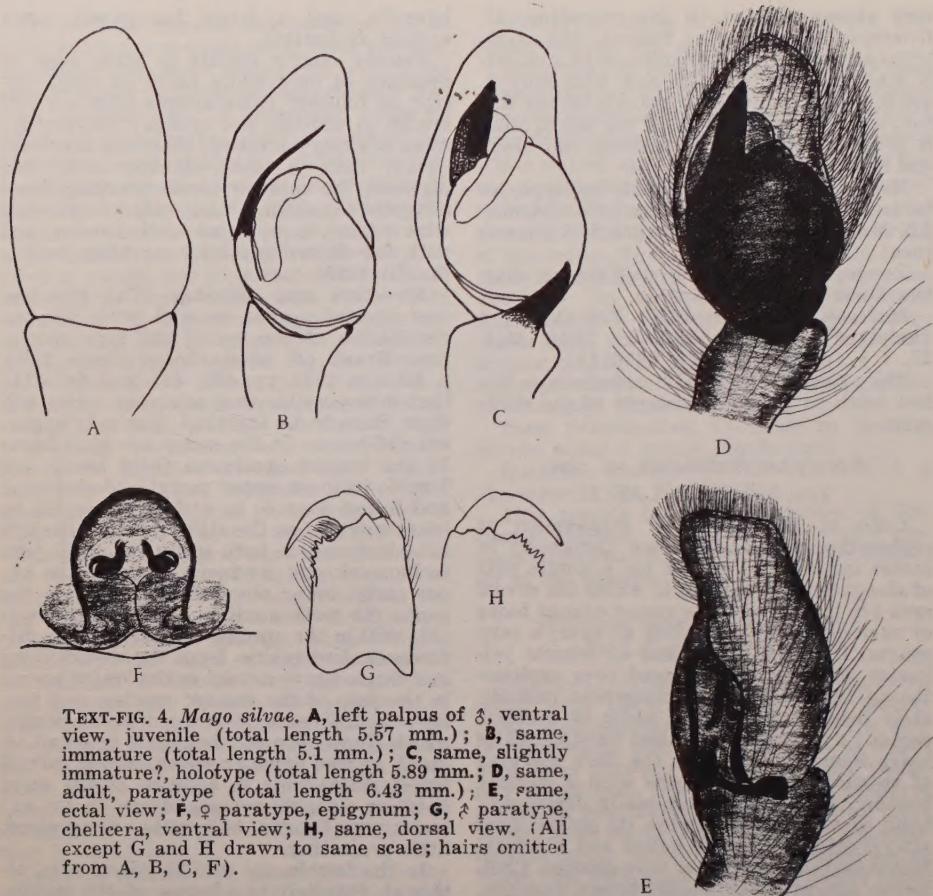
In the female, the median dorsal eyes, although definitely in advance of the middle, are slightly less advanced than in the male. Chelicerae more slender, with 5 teeth on upper margin, 6 on lower, on both sides; no tooth near apex of outer upper margin, but this area is swollen with a distinct summit in the same region which in the male gives rise to the spine. There seems to be no reason to doubt that the two specimens belong to the same species, in spite of the fact that the male is from Kartabo, the smaller, probably immature female, from Caripito.

Measurements in mm.: Male, total length 3.97; carapace 2.09; abdomen 1.88. Female, total length 3.49, carapace 1.68, abdomen 1.81.

Range: Known from Kartabo, Bartica District, British Guiana, and from Caripito, State of Monagas, Venezuela.

Material: Kartabo: 1924: April, 1 ♂ (holotype; Cat. No. 241012). Caripito: 1942: April 16-30, 1 ♀ (paratype; No. 42446).

The name *fimbriatus* is given this species in reference to the fringed palpi.



TEXT-FIG. 4. *Mago silvae*. A, left palpus of ♂, ventral view, juvenile (total length 5.57 mm.); B, same, immature (total length 5.1 mm.); C, same, slightly immature?, holotype (total length 5.89 mm.); D, same, adult, paratype (total length 6.43 mm.); E, same, ectal view; F, ♀ paratype, epigynum; G, ♂ paratype, chelicera, ventral view; H, same, dorsal view. (All except G and H drawn to same scale; hairs omitted from A, B, C, F.)

Mago silvae sp. nov.

Text-fig. 4.

Color in Life: Adult male: Integument of cephalothorax reddish-brown to brownish-black, the ocular quadrangle and area immediately behind it brightest. Dorsal eyes set in black. Four patches of pale yellow hairs as follows: one on each side between median and posterior dorsal eyes: a small median spot between posterior eyes; a large median spot behind posterior eyes. In addition, there are a few reddish hairs around all dorsal eyes. Large eyes chestnut brown rimmed with yellowish-brown hairs. Chelicerae black; mouthparts tipped with black. Palpi blackish-brown with moderately long, white hairs. First pair of legs considerably darker than others, with two patches of white hairs on anterior central parts of patella and tibia respectively; all legs banded dark and light, the dark ranging from vinaceous brown to dark chestnut, the pale

from buffy pink to light horn, the hairs light or dark corresponding to color of underlying integument. Sternum light brown. Abdomen above tawny olive to blackish-brown, with paler markings, varying from pinkish-buff to white, and poorly to sharply defined. A characteristic general pattern is always discernible, however, including two basal pale cross-bars separated by a dark bar and, behind these, six more or less coalescent and very irregular pale blotches; these are all often overlaid with uneven superficial pigment. Underside of abdomen almost entirely occupied by a dark triangle, vinaceous brown to blackish, traversed medially by a pair of narrow, longitudinal, pale lines, and surrounded laterally and posteriorly in front of spinnerets by gray. (From Beebe notes on Guyana holotype and Crane notes on Venezuelan paratype).

Adult female: Color in life unknown.

Juvenile female: Cephalothorax primuline to ochraceous yellow, naked except for buffy

yellow hairs fringing all eyes. Large eyes ochraceous brown to reddish. Anterior two pairs of legs and their hairs ochraceous orange; remaining legs somewhat paler than cephalothorax; tarsal claws black. Abdomen above and below same shade of yellow as cephalothorax with three pairs of very distinct, dark, dorsal spots and a longitudinal, dark, ventral band, narrower than in adult male. (From Beebe and Crane notes on Guiana and Venezuelan specimens, respectively).

Color in Alcohol: Little change, except for the usual fading. Adult female uniformly white except for three pairs of dorsal abdominal spots—larger, paler, and more irregular than in young female—and a dark, ventral, abdominal marking as in adult male. Dorsal abdominal markings in both sexes very variable in both intensity and shape, largely, but not altogether depending on developmental stage. Pattern of male practically identical, under outer epidermis, with that of female. In the male, the median pale hairy spot of ocular quadrangle is stronger in the young than in the adult, while that behind the posterior eyes develops late and is strongest in the adult. Both are easily rubbed off in preserved specimens and may be almost lacking. The paired spots between the dorsal eyes are always much stronger.

Structure and Affinities: Judging from Cambridge's (1882) and Simon's (1900, 1901) descriptions, the present species is a typical *Mago*. The character of the cheliceral teeth alone, however, as well as other details, distinguish it from all of Simon's species, while the tibial spines of the palp and the abdominal markings separate it at a glance from Cambridge's *intentus*, in the description of which the dental formula is not given. In the present form there are 7 to 8 (usually 8) unequal teeth on the upper margin, most of them large, except for the fourth, which is minute; 4 to 6 (usually 5) on lower margin; the full complement is not developed until late, well grown females, apparently mature save for incomplete epigyna and more compact abdominal spots, having as few as 2 teeth on lower margin. Unlike the male, the female has no spine on anterior side of first patella, and only one lateral spine (the more distal), on anterior side of first tibia.

The development of the palp is shown in the figures. In only one specimen, the largest (Guiana paratype, No. 1718, shown in the shaded drawing) is the longitudinal tubule on the bulb apparent, or the small loop to the right distinct; also, in all other specimens, the external, smaller, tibial spine is more pointed than in this old specimen. In cheliceral armature, body markings and all

other details, however, this male is typical of the species.

Measurements in mm.: Male holotype, total length 5.89, cephalothorax 3.17, abdomen 2.72; largest male (paratype, No. 1718), total length 6.43, cephalothorax 3.36, abdomen 3.07; male paratype (No. 42207), total length 5.38; youngest male, total length 5.57. Largest female (paratype, No. 42447), total length 6.53, cephalothorax 3.36, abdomen 3.17; youngest female (No. 24,111), total length 5.76.

Range: Known from Kartabo, Bartica District, British Guiana, and Caripito, State of Monagas, Venezuela.

Local Distribution: 9 of the total of 25 specimens taken are known to have been beaten from bushes and low trees on the edge of and within jungle of moderate height.

Material: *Kartabo*: 1917 (Sept.): 1 ♂ paratype (Cat No. 1718); 3 ♂ (Nos. 172, 1711, 1743); 1 ♀ paratype (No. 1748); 2 ♀, incl. 1 imm. (No. 1749). 1920 (Nov.): 1 imm. ♂ (No. 201625); 2 imm. ♀ (No. 201-624). 1921 (Jan.-April): 1 ♂ (No. 21312). 1922 (Feb.-Oct.): 2 imm. ♂ (No. 221147). 1924 (Feb.-May): 1 ♂ holotype (No. 24182); 3 ♂, 2 ♀, incl. imm. & juv. (Nos. 24111, 241013, 241014). *Caripito*: 1942: April 1-15, 1 ♀ paratype (No. 42447); April 18, 1 ♂ paratype (No. 42207); April 16-30, 2 ♂, incl. juv. (No. 42448); May 23, 1 juv. ♀ (No. 42273); Aug. 15-31, 1 imm. ♂ (No. 42449).

This species is named for its jungle habitat.

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² The plates (XI, XII) are missing in most of the extant copies of this paper, including the stock now on hand at Madison, Wisc. Dr. Petrunkevitch, however, very kindly sent me photographs of tracings he made from a complete copy some years ago.

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